



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,277	03/04/2002	Maximillian Fleischer	A35006 (071308.0294)	4174
21003 7590 08/22/2007 BAKER BOTTS L.L.P. 30 ROCKEFELLER PLAZA 44TH FLOOR NEW YORK, NY 10112-4498			EXAMINER SIEFKE, SAMUEL P	
			ART UNIT 1743	PAPER NUMBER
			MAIL DATE 08/22/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/090,277

Applicant(s)

FLEISCHER ET AL.

Examiner

Samuel P. Siefke

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsumi et al. (USPN 3,663,870).

Tsutsumi discloses a semiconductor device passivated with a rare earth oxide layer. The semiconductor device comprises a gas sensitive field effect transistor that comprises a substrate (fig. 6 ref. 71; col. 1, lines 50-70) having a source (72) and a drain (73) areas and at least one gate electrode (G in fig 6) associated with a gas sensitive layer comprising an inorganic metal oxide (scandium oxide; col. 5, lines 70-73; col. 2, lines 26-66) applied to the substrate (col. 6, line 66- col. 7, line 39). The gate electrode is physically separated from the substrate by the inorganic metal oxide layer 76 and 77. Further the gate electrode is physically separated from the source and drain regions by air gaps and the inorganic metal oxide layer 76 and 77. The gate electrode is parallel to the source and drain regions in that the gate electrode is between the source and the drain. The semiconductor further comprises an electrical heater (45 and 46; col. 3, lines 26-29). The semiconductor further comprises a plurality of different gas sensitive layers (col.6, lines 18-23).

Claims 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 4028062.

DE '062 discloses a gas sensor for measuring concentration of organic vapor in aromatic mixtures with polysiloxane absorbent contiguous substance forming ions or disposed over gate with wide sensitivity range for alcohols etc. (abstract). The sensor comprises a semiconductor substrate (2) with source (3) and drain (4) and an insulating film (5) on the substrate covered with a metal film with breaks (6) and gate (7). The gate electrode is physically separated from the substrate by the insulation film 5. Further the gate electrode is physically separated from the source and drain regions by insulation film 5. The gate electrode is parallel to the source and drain regions. A change in the threshold potential is used as sensor signal. Outside of the gate (7) is covered with a layer (8) of an adsorbent (I) for the target molecules of vapor of organic molecules contiguous substrate (II) producing ions or dipoles (abstract).

Claims 1, 6, 7, 10 are rejected under 35 U.S.C. 102(b) as being anticipated Inami et al. (USPN 4,638,346).

Inami discloses a field effect transistor type moisture sensor that comprises a field effect transistor device incorporated with a moisture sensitive means (abstract; col.col. 1, line 17- col. 2, line 9), the electrostatic capacity or the electrical conductivity of which varies with the absorption and the desorption of water vapor or moisture, wherein the moisture sensitive means is disposed on a gate insulating film of the field effect transistor device to form an electrode structure (abstract). The sensor comprises a source (2) and a drain (3) on silicon substrate (1). The surface of the silicon substrate is

Art Unit: 1743

covered with a silicon dioxide film having through holes for the source (2) and the drain (3). Double layers of the silicon dioxide film (5) and a silicon nitride film on the silicon substrate form between the source (2) and drain (3) a gate insulating film (100) (col. 4, lines 18-41). The gate electrode is physically separated from the substrate by layers 5, 6 and 7. Further the gate electrode is physically separated from the source and drain regions by layers 5, 6 and 7. The gate electrode is parallel to the source and drain regions. The moisture sensor containing a metal oxide film has an excellent heat resistance and responds rapidly and has a high temperature resistance coefficient, and a gas insensitive transistor for compensating for temperature effects (col. 2, lines 35-41; col. 3, lines 45-49; col. 4, lines 61-68).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1743

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 4028062 in view of Inami et al. (USPN 4,638,346).

DE '062 discloses a gas sensor for measuring concentration of organic vapor in aromatic mixtures with polysiloxane absorbent contiguous substance forming ions or disposed over gate with wide sensitivity range for alcohols.

DE '062 does not employ a moisture sensitive layer.

Inami discloses a field effect transistor type moisture sensor that comprises a field effect transistor device incorporated with a moisture sensitive means, the electrostatic capacity or the electrical conductivity of which varies with the absorption and the desorption of water vapor or moisture, wherein the moisture sensitive means is disposed on a gate insulating film of the field effect transistor device to form an electrode structure (col. 3, lines 31-56). It would have been obvious to one having an ordinary skill in the art to modify DE '062 to include the moisture sensitive layer of Inami to provide a more precise and balanced measurement because moisture interferes with alcohol detection (abstract DE '062) is known in the art.

#### ***Allowable Subject Matter***

Claim 11 and 12 are allowed.

The prior art does not teach or fairly suggest a gas sensitive layer as claimed comprising a polycyclopentylsilsesquioxane.

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 6/13/07 have been fully considered but they are not persuasive. Applicant argues, Tsutsumi fails to teach every limitations of claims 1, 4 and 5, specifically pointing to a physical vacant space separation between the substrate having a source and drain and the gate electrode. The Examiner points out that Tsutsumi discloses a substrate having a source and a drain that are physically separate to the gate electrode in that the air gaps and the inorganic metal oxide layer 76 and 77 provide the physical separation. Further, the Examiner points to the air gaps between the source and the gate electrode, and between the gate electrode and the drain. These physical air gaps are vacant spaces that allow the sample gas to pass there between and allow the analyte to react with the gas sensitive film. Therefore Tsutsumi discloses all the claim limitations of claims 1, 4 and 5.

The Examiner recommends capturing the drawing of figure 1 into claim language where a sample gas is passed through the sensor and provide references to the gate electrode being entirely separated from the substrate having the drain and source except for electrical connection with the substrate.

Art Unit: 1743

Applicant argues, '062 patent fails to teach every limitations of claims 1 and 2 specifically pointing to a physical separation between the substrate have a source and drain and the gate electrode. The Examiner points out that '062 discloses a substrate having a source and a drain that are physically separate to the gate electrode in that the insulation film provide the physical separation. Therefore '062 discloses all the claim limitations of claims 1, 2 and 12.

Applicant argues, Inami fails to teach every limitations of claims 1, 6, 7 and 10 specifically pointing to a physical separation between the substrate having a source and drain and the gate electrode. The Examiner points out that Inami discloses a substrate having a source and a drain that are physically separate to the gate electrode in that the insulation films 5, 6 and 7 provide the physical separation. Therefore Inami discloses all the claim limitations of claims 1, 6, 7 and 10.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



Art Unit: 1743

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel P. Siefke whose telephone number is 571-272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sam P. Siefke



8/17/07



Jill Warden  
Supervisory Patent Examiner  
Technology Center 1700